ENERGY Austria

Statistical Information:

GENERATION OF ELECTRICAL ENERGY

Calendar year 2000

TYPE OF PLANT	Data in GWh	Change to 1999	Percentage of consumption
Run-of-river-plants	31,127.7	5.2%	41.2%
Pumped-storage plants	12,412.0	2.1%	16.4%
Hydro power plants	**43,539.7**	4.3%	57.6%
Hard coal	4,432.0	53.2%	5.9%
Brown coal	1,292.3	-13.7%	1.7%
Fuel oil	1,588.3	-35.8%	2.1%
Natural gas	7,845.8	-9.9%	10.4%
Other fuels, incl. biogenic f.	3,094.9	1.4%	4.1%
Thermal power plants	**18,253.2**	-2.0%	24.1%
TOTAL	**61,793.0**	2.4%	81.7%
Physical imports	13,809.0	19.0%	18.3%
Generation	**75,601.0**	5.0%	100.0%

Austria has made notable progress in decoupling energy demand from economic growth. From 1980 to 1998 Austria's real GDP has grown by approximately 50%, which was three times faster that the growth of energy consumption.
In 1998, Austria's primary energy demand reached a level of 1,185 PJ.

The pattern of energy supply in Austria is characterized by the diversity of its renewable energy sources and the well developed networks of grid-bound energy carriers for gas, electricity and district heating.

The 23% share of renewables, mainly hydropower and biomass, is more than 4 times higher than the EU average. The share of oil has been stable during the last ten years - between 39 and 42%. During the same period, gas increased its share from 20 to 24% essentially due to substitution of coal based power sources.

Austria's level of energy demand is not only influenced by domestic economic development but also by its important role as the European north-south and east-west transport axis. Weather conditions also have a strong impact on the demand in room-heating and power-generation.

Evaluation of Sector:

Electrical Power Systems
Oil and Gas Field Equipment and Services
Renewable Energy Equipment

On a scale of 1 (low) to 5 (high) -
evaluate the priority given by the host government to energy issues: **4 - 5**

On a scale of 1 (low) to 5 (high) -
evaluate the country's receptivity to US products and services: **3 - 4**

On a scale of 1 (heavy) to 5 (little) -
evaluate competition for US exporters from local domestic suppliers: **3**

On a scale of 1 (heavy) to 5 (little) -
evaluate competition for US exporters from third-country suppliers: **2**

On a scale of 1 (severe) to 5 (little) -
Evaluate overall effect of trade barriers on US exports of products/services: **4**

Narrative Information:

Austria, with a population of less than 8 million people, receives its energy from oil, natural gas, hydrogeneration, biofuel and other renewable forms of energy and coal - in that order.

Austria refrained from using nuclear power due to very strong environmental concerns.

As a mountain country with a dense river network, it produces mainly hydroelectric power. Close to 1,700 power stations are in operation. Most of them are in high mountain regions, in the alpine foothills or on the Danube. Some of Austria's high-Alpine power stations have pressure-pipe altitude drops of up to 1,000 meters.

Austria's tradition of utilizing hydropower as a clean and emission-free way of generating electricity dates back several decades. "Donaukraft" runs eight power plants on the Danube.

In addition to these large hydropower stations of the major energy utilities,
Austria has a great number of small and very small power plants that are connected to the regional utility grids.

There are 1,690 small hydropower stations with a total capacity of about 600 MW and an annual generating capacity of 2,300 GWh. There are another 4,000 very small stations in Austria that are not included in the statistics because they are not connected to the public grid. Even though the defined maximum capacity of small hydropower plants in Austria is 5MW, about 70% of all stations for which there are statistical data have a capacity less than 250 kW. Over 90% of all installations are below 1,000 kW.

Taking into account the roughly 4,000 stations that are not covered by statistics, the proportion of plants smaller than 100 kW rises to about 90%, and the share of those with less than 1,000kW to 97%. It is thus safe to assume that the capacity of the typical Austrian small-scale power station is between 100 and 300 kW.
The Austrian Association for the Promotion of Small Power Stations tells us that only 40 to 45% of the potential for small hydropower plants has been exploited, leaving about 800 MW or 4000 GWh p.a. still to be developed.

LIBERALIZATION of the ELECTRICITY MARKET:

With an amendment in 2000 to the EIWOG law (Electrical Industry and Organization Act of 1998), Austria confirmed its role as one for the forerunners within the EU, and carried out the full liberalization of its electricity market in October 2001. Moreover, based upon this legislation, regulatory authorities have been set up, to regulate and monitor the development from a monopoly market to a fully liberalized energy market.

The Austrian Electricity Regulator, or E-Control, is responsible for fair market entry issues, since access to the electricity market in Austria is still dominated by a strong governmental influence.

AUSTRIA's POWER GRID:

The VERBUND Austrian Power Grid is the country's largest producer and distributor of electrical energy. The company operates the Austrian super-regional, high-voltage grid with important connections to neighboring countries in Central Europe. It generates sales revenue in the amount of € 1.32 billion ($1.15 billion) per year. Within the EU, the VERBUND has the reputation as the most eco-friendly electricity generator.

POWER PLANTS (maximum capacity)	MW	
	1999	2000
Run-of-river power plants	5,240.9	5,245.2
Pumped-storage power plants	6,402.4	6,402.5
Photovoltaic units	1.0	1.3
Wind power plants	27.8	34.6

OIL AND GAS in Austria:

OIL		GAS	
2000 Production	0,970 million tons	2000 Production	1,805 billion m3
2000 Imports	7,315 million tons	2000 Imports	6,086 billion m3

The Austrian oil and gas business environment has changed dramatically over the recent years. Austria's energy policy today stresses the global challenge of sustainable resource development. It seeks to influence consumer behavior by increasing energy taxes and is obliged to implement the EU-principles of the internal energy market.

Volatile oil prices, growing competition due to "mega-mergers" and the impressive progress in technology and information management are additional challenges, not only for the Austrian oil and gas business.

In this highly competitive environment the Austrian petroleum industry, active since the 19th century, has responded with restructuring and ambitious cost cutting and investment programs in order to maintain its position in the domestic market and to improve its position in the international arena.

At present, oil and gas comprises 66 % of Austria's total primary energy supply.

Exploration:
Exploration is performed by OMV and Rohoel-Aufsuchungs-AG (RAG).
The current concessions, granted under contracts with the Republic of Austria, are covering a total area of 9,033 km2.

Production:
Crude oil and natural gas are produced in Austria by three companies, OMV, RAG and VanSickle.

The production and gas storage concession of OMV and RAG cover more than 784 km2, with crude oil and natural gas now being recovered from 73 producing fields as well as from VanSickle's oilfield.

Recoverable reserve estimates, as of January 1, 2001, compiled by the Geological Survey of Austria, amount to 11.8 million tons of crude oil & NGL and 26.4 billion m3 of natural gas.

Refining:
There is only one petroleum refinery in Austria, located in Schwechat (near Vienna) and owned by OMV. This refinery processes the indigenous crudes produces by OMV and RAG in Lower Austria, as well as crude oil imported by OMV and the international companies.

Imported crude oil is transported to the Schwechat refinery through the Adria-Wien-Pipeline (AWP), a pipeline with a diameter of 18 inches running 415 km. The AWP branches off in the Southern Austrian province of Carinthia from the Transalpine Oelleitung (TAL), leading from Trieste to Ingolstadt. The AWP can pump up to 10 million tones of crude oil per year into the refinery.

The Adria-Wien-Pipeline is owned by OMV and by five other companies that have their imported crude processed in Schwechat under contract with OMV.

Natural gas activities:
Since 1974, at the Austrian intake point at Baumgarten (on the border to the Slovak Republic), gas has been delivered for transport via the Trans-Austria-Gasleitung (TAG) to Italy, and since 1978, to Slovenia and Croatia via Sued-Ost-Leitung (SOL) that branches off the TAG south of Graz. A parallel pipeline to Italy (TAG2), was completed in 1990. A

pipeline capacity upgrade implemented by additional compressor untis, completed in 1998, shows the importance of this trunk line for Southern Europe. Natural gas for France has been transported since 1980 via the West-Austria-Gasleitung (WAG). The 28 inch Hungarian-Austria-Gasleitung (HAG), 45 km long, has been in operation since October 1996, transporting natural gas from West European countries to Hungary. In 1999 the 28 inch, 72 km long "Penta West" pipeline was completed and transports gas to Bavaria in Southern Germany. All these pipelines are owned and operated by OMV. The TAG runs 384 km (diameters of 42, 38 and 36 inches). The WAG has a length of 246 km and a diameter of 32 inches. In addition to international transport, both the TAG and the WAG are used to transport gas for Austria's own needs.
In 2000, Austria imported 6.086 billion m3 of natural gas, of which 5.2 billion m3 came from Russia and smaller amount from Germany and Norway.

Oil & Gas outlook:

Oil and gas will remain the most important energy sources in the near future in Austria.

The long-term trends, to less carbon-intensive and grid-bound energy and to improved qualities of oil products, will be encouraged by the Austrian government's tax policy and regulations. Implementation of international, national and regional measures to achieve the required emission reduction, will have a strong influence on Austria's energy market and will become a main challenge for its oil and gas industry.

LIBERALIZATION of the GAS MARKET:

In March of 2000, Austrian Economics Minister Bartenstein in co-operation with Price/Waterhouse announced very ambitious plans for not only the electricity, but also the gas market.

These plans include a two-phase process; the first had been concluded in 2000.
Now customers purchasing natural gas over 25 million m3 p.a. will be able to freely choose among suppliers.

The second phase in the liberalization process will require finding solution for how to equitably share obligation from existing long-term Russian ToP (Take Or Pay) contracts. (Some 72% of natural gas available in Austria comes from Russia, the remainder from OMV and RAG's exploration activities) This second phase should be completed by the end of 2002, when private households should be in a position to select a gas supplier of their choice. Minister Bartenstein estimates price reductions of at least 10% for the private consumer.

RENEWABLE ENERGY in Austria:

The geography and the rich forest resources of Austria are fundamental for the development of water and biomass as sources of energy, but it was only when Austria's energy policy was aligned with its economic and environmental assets that these had a substantial effect on the Austrian energy supply.

The public and government enthusiasm for renewable energy sources greatly helped this development. Close to 26.5% of Austria's energy is supplied by renewable sources. The most important ones are hydropower with 13.4% and the so-called "other energy sources" (especially bio-mass) with about 12.9%. This puts Austria at the forefront of countries relying on these environmentally sound energy sources worldwide.

Most Promising Subsectors:

Small hydraulic power stations have a great development potential.
(the upgrade of existing small hydraulic energy stations has been found even more cost effective than that of wind power plants)

Wind turbines (new wind parks and additions to existing ones are in planning stage)

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